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Book of Abstracts of the 1st International Symposium on Profiling

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P2. Chemical profile of *Macrolepiota procera* wild mushroom submitted to different processing technologies

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Abstract

Mushrooms are very perishable food products and therefore tend to lose quality immediately after harvest. Extended shelf-life is an imperative factor to increase the profitability and availability of any food product, since it offers the possibility of developing markets at a greater distance [1,2]. Independently of the applied processing technology, any food product should retain the chemical and nutritional characteristics that typify its fresh form. In this work, the influence of freezing, drying and gamma-irradiating on the chemical parameters of *Macrolepiota procera*, one of the most appreciated wild mushrooms, was assessed through a principal component analysis. Fruiting bodies were obtained in Trás-os-Montes, in the Northeast of Portugal, in November 2011. The irradiation was performed in experimental equipment with four ⁶⁰Co sources at 0.6 kGy. The samples were submitted to different processing technologies: freezing (at -20 °C in a freezer), drying (at 30 °C in an oven) and gamma irradiation in fresh samples. Proximate composition was evaluated by official procedures, fatty acids were analysed by gas-chromatography coupled to flame ionization detection (GC-FID), while sugars and tocopherols were determined by high performance liquid chromatography (HPLC) coupled to refraction index (RI) and fluorescence detectors, respectively. Dried and irradiated samples exhibited higher percentages of saturated fatty acids (SFA), while monounsaturated fatty acids (MUFA) were higher in irradiated samples and polyunsaturated fatty acids (PUFA) reached maximal values in frozen samples; γ -tocopherol and δ -tocopherol were the vitamers with the highest variability, but other statistical differences could be observed, proving that the tocopherols profiles obtained for each processed samples were quite dissimilar. Dried samples gave the highest total free sugars content (19.3 g/100 g dw), presenting the highest levels of mannitol (11.4 g/100 g dw). The highest concentrations of trehalose (10.2 g/100 g dw) and melezitose (1.42 g/100 g dw) were found in irradiated samples, while fructose (0.17 g/100 g dw) was the highest in frozen samples. Overall, gamma irradiation was the processing technology with the highest capacity to retain the chemical profile presented by fresh samples, indicating its high potential to be developed as an alternative conservation methodology.

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